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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/821,189	04/08/2004	Kenichi Hasegawa	116-043810	8223

28289 7590 12/29/2005

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EXAMINER	
VARGAS, DIXOMARA	
ART UNIT	**PAPER NUMBER**
2859	

DATE MAILED: 12/29/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

H'A

Office Action Summary	Application No.	Applicant(s)	
	10/821,189	HASEGAWA ET AL.	
	Examiner	Art Unit	
	Dixomara Vargas	2859	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☒ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-16* is/are pending in the application.

4a) Of the above claim(s) *5-8 and 12-14* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-4,9-11,15 and 16* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *08 April 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☒ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☒ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Specification

1. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 9-11 are rejected under 35 U.S.C. 102(b) as being anticipated by Hanawa (US 5,343,149 A).

With respect to claim 9, Hanawa discloses in an NMR apparatus comprising (Figure 4): means for subjecting a sample or specimen to a strong static magnetic field to induce precessional motion to the magnetic moments of atomic nuclei within the sample or specimen (#15 and #32), a RF irradiation coil for applying RF power perpendicularly to the direction of the static magnetic field and at a frequency to induce precessional motion of the magnetic moments of the in an excited state (#34-#35), first R.F power application means for during periods of time applying R.F power of a frequency necessary for measurement of an NMR signal to the irradiation coil; and second RF power application means for, during periods complementary to

the period the first power application means is active applying RF power of a frequency not affecting the measurement of the NMR signal to the RF irradiation coil (#18 and #13).

4. With respect to claim 10, Hanawa discloses said detection coil or the RF irradiation coil has a resonance mode which is different from a resonance mode at a measurement frequency for the NMR signal and which does not affect the measurement of the NMR signal (Column 4, lines 11-15).

5. With respect to claim 11, Hanawa discloses said frequency not affecting the measurement of the NMR signal is shifted from the measurement frequency for the NMR signal by a given frequency and can resonate in the same resonance mode as the measurement frequency for the NMR signal (Column 4, lines 32-45).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later

invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

8. Claims 1-4, 15 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hanawa (US 5,343,149 A) in view of Oppelt (US 4,652,824).

With respect to claim 1, Hanawa discloses an NMR analysis method comprising the steps of: a) subjecting a sample or specimen to a strong static magnetic field to induce precessional motion to the magnetic moments of atomic nuclei within the sample or specimen (Column 4, lines 28-31);

b) applying RF power perpendicularly to the direction of the static magnetic field with an irradiation coil during periods spaced and at an RF frequency to induce precessional motion of the magnetic moments in an excited state (Column 4, lines 1-15);

c) detecting an NMR signal released with a detecting coil when precessional motion of the magnetic moments return to a ground state (Column 4, lines 1-15); the improvement comprising:

d) during periods complementary to the applying the RF power in step b) applying RF power of a frequency not affecting measurement of the NMR signal to minimize variation in the temperature of the coils detecting the NMR signal (Abstract).

In addition, Hanawa discloses the claimed invention as stated above except for the step of cooling with low temperature fluids the coils used to apply RF power or detect NMR signals. However, Oppelt discloses the step of cooling with low temperature fluids the coils used to apply RF power or detect NMR signals (Column 3, lines 63-68). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use Oppelt's

cooling method with Hanawa 's NMR analysis method for the purpose of reducing the noise of the system at the same time that overheating of the coils is avoided.

9. With respect to claim 2, Hanawa discloses said detection coil or the RF irradiation coil has a resonance mode which is different from a resonance mode at a measurement frequency for the NMR signal and which does not affect the measurement of the NMR signal (Column 4, lines 11-15).

10. With respect to claim 3, Hanawa discloses said frequency not affecting the measurement of the NMR signal is shifted from the measurement frequency for the NMR signal by a given frequency and can resonate in the same resonance mode as the measurement frequency for the NMR signal (Column 4, lines 32-45).

11. With respect to claim 4, Hanawa discloses the total amount of RF power applied to the detection coil or the RF irradiation coil is controlled to be almost constant irrespective of whether the RF power of the frequency necessary for the measurement of the NMR signal is applied or not (Column 4, lines 61-67).

12. With respect to claims 15 and 16, Hanawa discloses the same coil or different coils are used to apply RF power and to detect NMR signals (Column 4, lines 10-15).

Response to Arguments

13. Applicant's arguments with respect to claims 1-4, 15 and 16 have been considered but are moot in view of the new ground(s) of rejection.

14. Applicant's arguments filed 10/19/05 have been fully considered but they are not persuasive.

15. With respect to arguments regarding claims 9-11, applicant argues that the prior art fails to teach the step of applying RF power of a frequency not affecting measurement of the NMR signal.

16. The examiner disagrees with applicant's argument because Hanawa discloses the applying different pulse sequences not simultaneously. Therefor the measurement of the first pulse sequence is different from the second one not affecting the first measurement since each will be independent and the amplitude of each sequence may vary as desired by controlling the aspects of the sequences through the sequence controller (Column 5-6, lines 65-68 and 1-4 respectively). If applicant meant an irradiation different than the RF transmission, applicant is reminded that the claim language does not reflect said limitation.

Conclusion

17. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The additional prior art cited in the PTO 892 discloses imaging systems with power control means to drive the RF coil for applying the desired pulse at a predetermined frequency and systems with cooling means to cool the RF coils.

18. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after

the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dixomara Vargas whose telephone number is (571) 272-2252. The examiner can normally be reached on Monday to Thursday from 8:00 am. to 4:30 pm..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Diego Gutierrez can be reached on (571) 272-2245. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Dixomara Vargas
Art Unit 2859
December 27, 2005

GAIL VERBITSKY
PRIMARY EXAMINER